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EARTHQUAKE PROTECTION  
CONSISTING OF VIBRATION-ISOLATED MOUNTING OF  
BUILDINGS AND OBJECTS  
USING VIRTUAL PENDULUMS WITH LONG CYCLES

5 Abstract

The invention relates to an earthquake protection system that is entirely immune to seismic activity. According to the inventive method buildings and other objects are supported by Virtual Pendulums ( $P_v$ ) designed as **QuakeProtect** Modules (56). Although requiring only little height for installation, these earthquake protection modules allow a freedom of movement for the load bearing support points of the supported structure as if they were the oscillating ends of long pendulums with long cycles of their own. As the result of which the supported object is efficiently isolated from the considerably higher frequent earthquake ground oscillations. The functional behavior of the system is not affected by the extent of the base acceleration or the frequency of the ground oscillation. Even in an earthquake of greatest magnitude the supported object will remain still. The system can be configured for any load and any conceivable ground oscillation amplitudes.

The invention describes four different examples of solutions that apply the inventive method, variants and devices derived therefrom for various applications. Additionally are described devices needed to provide support against wind forces and to center a supported object under wind loads and during ground oscillations, and as well devices for the isolation of vertical ground oscillations.

(FIG.1)